

REMARKS

Applicants cancel claims 13, 16, and 19-24 without prejudice. Claims 2-3, 5-6, 14-15, and 17-18 have previously been canceled. Claims 1, 4, and 7-12 remain pending in the application. Applicants amend claims 1, 4, and 7-11 for further clarification. No new matter has been added.

Claims 1, 4, 7-13, 16, and 19-24 were rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent Application Publication No. 2002/0143960 to Goren et al. in view of U.S. Patent No. 7,095,740 to Jagannath et al. Applicants amend claims 1, 4, and 7-11 in a good faith effort to further clarify the invention as distinguished from the cited references. Applicants respectfully traverse the rejection.

Goren et al. and Jagannath et al., as cited and relied upon by the Examiner, at least fail to disclose or suggest the claimed features of: decomposing a network into at least one core ring network and a plurality of branch networks interconnected with the core ring network, generating a virtual ring network as a new ring network area to be managed, by combining the branch networks, and displaying the virtual ring network to be a managed area by concealing the nodes constituting the core ring network.

In other words, even assuming, arguendo, that it would have been obvious to one skilled in the art at the time the claimed invention was made to combine Goren et al. and Jagannath et al., such a combination would still have, at least, failed to disclose or suggest,

“[a] network management system for managing a network, comprising:
a network decomposition unit which decomposes said network into at least one core ring network and a plurality of branch networks interconnected with said core ring network;
a table management unit that comprises,
a branch information table for managing information on structures of said branch networks,
a core information table for managing information on a structure of said core ring network,

a connection information table for managing information on connections between the core ring network and the branch networks,

a protection information table for containing information on protection of channels between nodes in the core ring network, and

a virtual-network generation unit which generates a virtual ring network as a new ring network area to be managed, by combining said branch networks based on information managed by said table management unit,

said virtual-network generation unit performing:

(a1) checking that designated branch networks are connected to the identical core ring network, where the designated branch networks are branch networks designated by operator,

(a2) checking that link bandwidths of the designated branch networks do not exceed the value of a link bandwidth of the core ring network,

(b1) obtaining branch connection points of the designated branch networks from the branch information table,

(b2) obtaining nodes having the branch connection points in the core ring network from the connection information table,

(b3) obtaining links from the core information table, where the links are physical transmission lines connecting the nodes,

(c) generating subnetwork connections by connecting the branch connection points, the nodes and the links,

(d) removing the subnetwork connections which pass through an identical link from the generated subnetwork connections,

(e) generating the virtual ring network by connecting the subnetwork connections which pass through different links,

wherein, when a working path is established between the nodes in the core ring network and when there are a plurality of channels between the nodes, said virtual-network generation unit generates the subnetwork connections by preferentially selecting ones of the channels that are not protected in order to avoid double protection by a protection path, based on the protection information table; and

a virtual-network display unit that displays the virtual ring network to be a managed area by concealing the nodes constituting the core ring network,” as recited in claim 1. (Emphasis added)

Advantageously, the claimed invention provides for reducing the amount of work that an operator is required to do for registering and changing a virtual ring network, or adding and removing a node—thus, improving usability and efficiency in the management and maintenance of ring networks.

Accordingly, Applicants respectfully submit that 1, together with claims 4 and 7-12 dependent therefrom, is patentable over Goren et al. and Jagannath et al. separately and in combination, for at least the foregoing reasons.

In view of the remarks set forth above, this application is in condition for allowance which action is respectfully requested. However, if for any reason the Examiner should consider this application not to be in condition for allowance, the Examiner is respectfully requested to telephone the undersigned attorney at the number listed below prior to issuing a further Action.

Any fee due with this paper may be charged to Deposit Account No. 50-1290.

Respectfully submitted,

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